

First Tropospheric Ozone Measurements at the Observatory of Huancayo, Peru

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Biomass burning in the Amazon Basin produces large amounts of emissions that under the predominant easterly wind conditions can get transported to the Andean region. Satellite observations suggest that increases in tropospheric ozone over the Andes could be caused by secondary ozone production in biomass burning influenced pollution transport.

There are very few surface ozone observations in this region for investigating pollution sources and transport. In order to improve the understanding of the seasonal ozone dispersion over the Andes surface ozone monitoring was established at the Observatory of Huancayo, Peru (lat. 12.05° S, lon. 75.32° W and 3,313 m) with support from the United States Agency for International Development (USAID) program. These are the first reactive gas measurements at this meteorological station. The available record, starting in April 2014, shows a significant diurnal variation with ozone maxima during noon to early afternoon. Highest values were recorded from August to October; occasionally exceeding 60 ppbv, the Air Quality Standard for tropospheric ozone in Peru. This ozone dynamic is surprising given the rural setting of the site. Data are used to investigate the potential influence of mountain flow regimes, long-range biomass burning transport, and local pollution from urban areas in the Mantaro Valley.

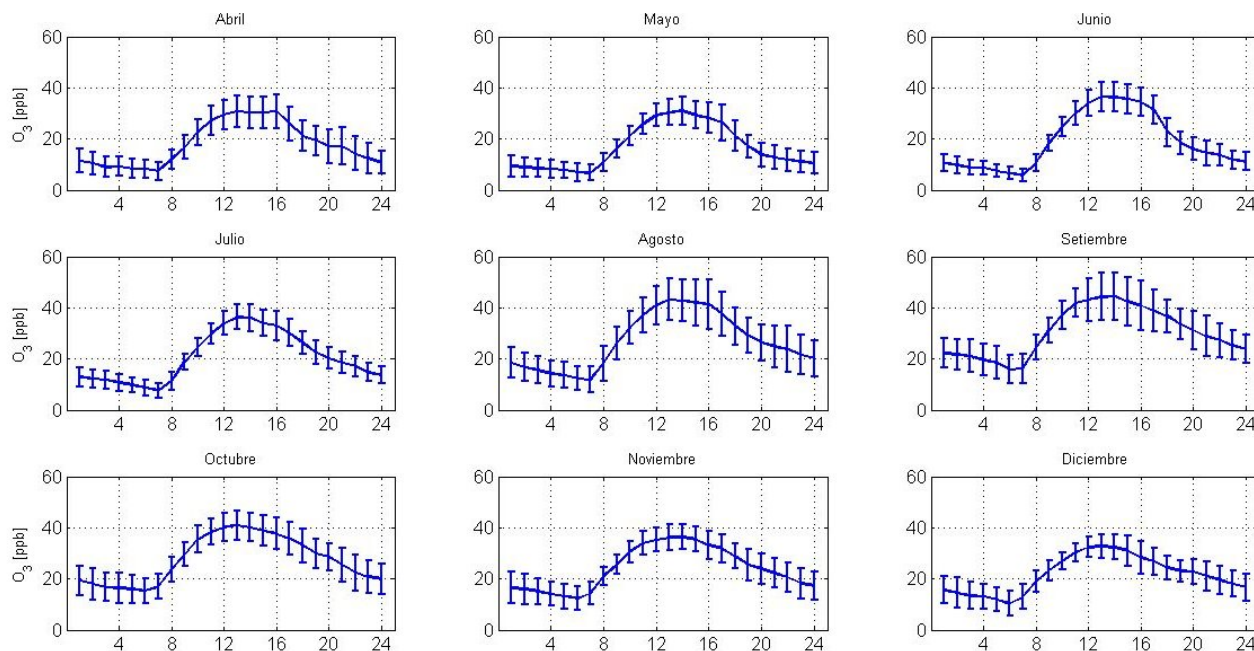


Figure 1. Mean diurnal cycle of first 9 months of tropospheric ozone monitoring at the Observatory of Huancayo